

## CLAIMS

What is claimed is:

1. A collision avoidance system for a vehicle, comprising:

- a warning device;

- a plurality of sensors that are arranged around the vehicle and that have sensing zones, wherein each of said sensors sense objects that are located in respective ones of said sensing zones and generate sensor signals that are related to a distance between respective ones of said sensors and the objects located in said sensing zones;

- memory that stores a plurality of profiles, wherein each of said profiles defines at least one alarm limit for each of said sensors;

- a vehicle collision avoidance controller that communicates with said plurality of sensors and that triggers said warning device when said sensor signal that is associated with one of said plurality of sensors exceeds a respective one of said alarm limits in said selected profile.

2. The collision avoidance system of Claim 1 further comprising:

- a profile selection device that allows user selection one of said plurality of profiles from said memory; and

- a profile setting module that allows at least one of creation, editing and deletion of said profiles.

3. The collision avoidance system of Claim 1 further comprising a security module that restricts access to said profiles based on a security protocol.

4. The collision avoidance system of Claim 1 wherein at least one of said plurality of sensors wirelessly communicates with said vehicle collision avoidance controller.

5. The collision avoidance system of Claim 1 further comprising:  
a vehicle positioning system that generates vehicle position signals identifying a position of said vehicle relative to a fixed coordinate system; and  
an automatic profile selection module that receives said position signals and that automatically selects one of said profiles based on said position signals.

6. The collision avoidance system of Claim 1 further comprising a configuration module that automatically configures said collision avoidance system when said sensors are connected to said vehicle collision avoidance controller.

7. The collision avoidance system of Claim 1 wherein said warning device includes a display that concurrently displays a status of said sensors.

8. The collision avoidance system of Claim 7 wherein said display includes red, green and blue visual states for each of said sensors.

9. The collision avoidance system of Claim 1 wherein said sensors are located at least one of a front of said vehicle, on sides of said vehicle, a rear of said vehicle, on side of a device connected to said vehicle, and on a rear of said device connected to said vehicle.

10. A collision avoidance system for a vehicle, comprising:

a warning device;

a plurality of sensors that are arranged around the vehicle and that have sensing zones, wherein each of said sensors sense objects that are located in respective ones of said sensing zones and generate sensor signals that are related to a distance between respective ones of said sensors and the objects in said sensing zones;

memory that stores a plurality of profiles, wherein each of said profiles defines at least one alarm limit for each of said sensors;

a vehicle positioning system that generates vehicle position signals identifying a position of said vehicle relative to a fixed coordinate system;

an automatic profile selection module that receives said position signals and that automatically selects one of said profiles based on said position signals; and

a vehicle collision avoidance controller that communicates with said plurality of sensors and that triggers said warning device when said sensor signal that is associated with one of said plurality of sensors exceeds a respective one of said alarm limits in said selected profile.

11. The collision avoidance system of Claim 10 further comprising:
  - a profile selection device that allows user selection one of said plurality of profiles from said memory; and
  - a profile setting module that allows at least one of creation, editing and deletion of said profiles.
12. The collision avoidance system of Claim 10 further comprising a security module that controls access to said profiles based on a security protocol.
13. The collision avoidance system of Claim 10 wherein at least one of said plurality of sensors wirelessly communicates with said vehicle collision avoidance controller.
14. The collision avoidance system of Claim 10 wherein said warning device includes a display that concurrently displays a status of said sensors.
15. The collision avoidance system of Claim 14 wherein said display includes red, green and blue visual states for each of said sensors.

16. The collision avoidance system of Claim 10 wherein said sensors are located at least one of a front of said vehicle, on sides of said vehicle, a rear of said vehicle, on side of a device connected to said vehicle, and on a rear of said device connected to said vehicle.

17. A method for avoiding collisions between a vehicle and objects, comprising:

arranging sensors having sensing zones around the vehicle;  
generating sensor signals that are related to a distance between respective ones of said sensors and objects in said sensing zones;  
generating and storing a plurality of profiles, wherein each of said profiles defines at least one alarm limit for each of said sensors; and  
triggering a warning when said sensor signal that is associated with one of said plurality of sensors exceeds a respective one of said alarm limits in said selected profile.

18. The method of Claim 17 further comprising:

selecting one of said plurality of profiles from said memory as a selected profile; and  
allowing at least one of creation, editing and deletion of said profiles.

19. The method of Claim 17 further comprising controlling access to said profiles using a security protocol.

20. The method of Claim 17 further comprising using wireless communications to communicate with said sensors.

21. The method of Claim 17 further comprising:  
generating vehicle position signals identifying a position of said vehicle relative to a fixed coordinate system; and  
automatically selecting one of said profiles based on said vehicle position signals.

22. The method of Claim 21 further comprising performing automatic configuration when said sensors are connected.

23. The method of Claim 17 further comprising using a plurality of visual states for each of said sensors to identify a position of said object relative to said vehicle.